DOCUMENT RESUME

ED 189 487 CG 014 512

AUTHOR Berger, Seymour M.; Hecken, Margit H.
TITLE Observer Mediation and Learning in the Presence of a Stranger.
PUB DATE 80
NOTE 22p.; Paper presented at the Annual Meeting of the Eastern Psychological Association (51st, Hartford, CT, April 9-12, 1980). Best copy available.

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Adults; *Behavior Patterns; *Imagery; Interaction; *Learning Processes; Observation; Social Behavior; *Stranger Reactions; *Symbolic Learning
IDENTIFIERS *Gestures; *Mimicry

ABSTRACT

Some research has found that observers believe overt mimicry is socially unacceptable and embarrassing in the presence of a stranger. It was hypothesized that observers would inhibit their mimicry of learned pairs of gestures in the presence of a stranger, and that their learning would be adversely affected unless they compensated for the reduction in mimicry by an increase in symbolic coding, especially imaginal coding. Undergraduate students (24 females and 10 males) learned pairs of gestures either in the presence of a stranger or alone, and then completed a questionnaire assessing mediation types, learning strategies, and anxiety/suspicious feelings about the experiment. The results showed that mimicry decreased and imaginal coding of gestural pairs increased in the presence of a stranger, particularly for the first pair of gestures presented. Imaginal coding of the first pair was positively related to observer learning of that pair. Observer mediation (to some extent) and learning (to a larger extent) tended to diminish during the sequential presentation of the gestures. (Author)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED189487

Conference noted on release form. C.K. Jaslow

VAILABLE

Observer Mediation and Learning in the Presence of a Stranger

Seymour M. Berger and Margit H. Hecken

University of Massachusetts, Amherst

Running Head: Observer Mediation and Learning

Seymour M. Berger
Department of Psychology
University of Massachusetts
Amherst, MA 01003

CG 014512

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

2 Seymour Berger

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Observer Mediation and Learning in the Presence of a Stranger

Seymour M. Berger and Margit H. Hecken

University of Massachusetts, Amherst

Bandura's (1969) analysis of observational learning was developed to explain how observers acquire behavior displayed by a model without responding overtly (p. 133). His analysis emphasizes the observer's use of symbolic (imaginal and verbal) coding for retention and motoric reproduction of the model's behavior. Evidence supporting this coding analysis, however, has been based (for the most part) on data obtained from observers who were instructed to employ one or more coding strategies and not from observers who coded spontaneously (e.g., Bandura, Grusec, & Menlove, 1968; Bandura & Jeffrey, 1973; Gerst, 1971; van Hekken, 1969).

Recently, Berger, Carli, Hammersla, Karshmer, and Sanchez (1979) have examined observers' spontaneous coding and found evidence for both overt motor rehearsal (i.e., mimicry) and symbolic coding of the model's responses. According to their interpretation, mimicry has at least two different functions, depending upon the observers' familiarity with the response components of the model's behavior. Observers who are unfamiliar with these responses use mimicry as a form of practice and rehearsal which helps them acquire these responses. Observers who are familiar with the responses and verbal codes that represent them, mimic the model's responses in order to retain them long enough to employ their verbal codes.

In that study, observers were alone during their exposure to the model because previous research (Berger, 1966; Berger, Irwin,

and Frommer, 1970) reported that the presence of a stranger (i.e., the experimenter) tended to inhibit overt mimicry. It seems that observers believe that overt mimicry is socially unacceptable and that they would be embarrassed if they mimicked in the presence of a stranger. The apparent absence of spontaneous mimicry in studies supporting Bandura's analysis may have been due to the fact that observers were instructed to use certain symbolic coding strategies and, in at least some of the studies, the presence of the experimenter.

Of course, observational learning of a model's motor behavior may occur in situations where a stranger is present (e.g., physical education class) or in situations where the observer is alone (e.g., watching television). How these two types of situations may affect observer mediation and learning is the major focus of this study.

The task involved learning pairs of familiar gestures. Gestures commonly used in U.S. culture were chosen to insure that all observers could perform and verbally code them.

If the presence of a stranger inhibits the observers' mimicry of these familiar gestures, they should learn fewer pairs than observers who were alone because they cannot preserve the gestures for symbolic coding. On the other hand, it seems likely that observers will change their coding strategy and engage in more imaginal coding as a means of preserving the gestures for longer-term retention through verbal coding; in this case, learning in the presence of a stranger should not differ from learning while alone.

Method

Subjects

Thirty-four undergraduates (24 females and 10 males) from

psychology courses at the University of Massachusetts, Amherst, were included in this study.[1] Subjects received course credits for their participation.

Procedure

Observers were run individually. They were seated in a chair located about six feet from a 19 inch television monitor and were asked to learn pairs of gestures which would be presented by means of videotape. The instructions indicated that after viewing the tape they would be tested to determine how many pairs they had learned.

The tape showed a television set and the back of a woman who faced the set.[2] Observers were informed that the pairs of gestures would appear on the set and that the woman would repeat each gesture so the observer could see both the front and back of each gesture. Each gesture appeared on the screen for about two seconds, with a one second interval between the members of a given pair, and a three and one half second interval between each pair. It took the woman-model about one second to repeat each gesture.

Six gestures were selected on the basis of a pilot study which indicated that each gesture was highly associated with an English word or phrase by a comparable group of subjects. The gestures were arranged into pairs so as to minimize meaningful associations of the gestures in a given pair. The three pairs were presented in the following order (as indicated by the word-associates for the gestures): "come here" and "OK"; "good-bye" and "you"; "stop" and "peace".

Observers were assigned alternately to either the Presence or

Alone condition so that there were 12 females and 5 males in each condition. In the Presence condition, the experimenter gave the general instructions, turned on the videotape, and seated herself in a chair located about six feet from the observer. During the videotape presentation, the experimenter casually looked in the general direction of the observer, but did not stare. In the Alone condition, a screen was placed next to the observer's chair before the observer arrived.[3] These observers received the general instructions, but they were told that after the experimenter started the videotape, she would leave the room in order not to interfere with their learning. She started the tape, which had sufficient lead-time to allow her to leave the room before the gestures appeared. She left the door ajar behind her when she departed. When she heard the signal on the videotape that indicated the end of the presentation, she immediately returned to the room.

The videotaped presentation was followed by a learning test. The observer was asked to perform all of the pairs of gestures and the experimenter recorded each correctly performed gesture, in the order it was given. In scoring these records, observers were considered to have learned a pair if the component gestures were given consecutively, even if the order of the gestures was reversed.

After the learning test, observers completed a questionnaire. The first part of the questionnaire asked them to report the types of mediation they used while watching the presentation of the gestures. The first item asked observers if they actually performed any of the gestures and, if so, to circle the drawing of each gesture they performed. Each item included drawings of the gestures

for this purpose. The second item asked observers to report if they had formed images of any of the gestures and, if so, to circle each gesture for which they formed an image. The third item asked them if they used words to represent any of the gestures and, if so, to circle these gestures and to write in which word or words they used. The final item in this series asked observers if they represented any of the gestures in some other way (e.g., numbers, letters) and, if so, to circle the appropriate gesture and indicate what form of representation they used.

These items were followed by a question asking observers to indicate if they were suspicious about any aspects of the experiment and, if so, to describe what they were suspicious about. For the final set of items observers used nine-point bipolar rating scales to indicate whether they were tense or relaxed, distracted or nondistracted, anxious or nonanxious, fearful or nonfearful of being evaluated, and aware or unaware of the experimenter during the experiment.

Observers were given a full explanation of the study and were asked not to discuss the experiment with anyone.

Results

The data analysis involved comparisons between the Presence and Alone conditions for particular forms of mediation, for differences in learning, and for differences in their self-ratings. In addition, each mediator was correlated with the measures of learning and with the other mediators within each of the conditions. All significance levels were based upon two-tailed tests.

Analysis of Mediation. These comparisons involved only three of the four forms of mediation because observers rarely reported using "other" forms of mediation. The mean number of different gestures reported for each type of mediator in each condition is presented in the left side of Table 1. Less mimicry was reported by observers

---

Table 1 goes about here

---

in the Presence than in the Alone condition ($t(32) = 2.13$, $p < .05$). More imaginal and verbal coding were reported in the Presence than in the Alone condition, but these differences were nonsignificant.

A second measure of mediation involved the number of different pairs of gestures coded. The mean number of different pairs coded for each type of mediator in each condition is shown in the right side Table 1. More imaginal coding of pairs occurred in the Presence than in the Alone condition ($t(32) = 2.31$, $p < .05$); observers in the two conditions did not differ significantly in their mimicry or verbal coding of pairs.

A microanalysis of the data was performed to determine whether these findings are characteristic of the observers' mediation of specific pairs. One such analysis was based upon the number of observers in each condition who either used or did not use a particular type of mediator to represent one or both gestures comprising a specific pair (a measure somewhat comparable to the total number of different gestures score used above). As can be seen in Table 2, fewer observers in the Presence than the Alone condition mimicked components of the first ("come here" and "OK") and second ("good-bye" and "you") pairs of gestures (χ^2s = 4.37,

---

Table 2 goes about here

$p < .05$) and 6.10, $p < .025$, respectively); this comparison for the third pair was nonsignificant. These same comparisons for imaginal and for verbal coding were nonsignificant.

The same type of analysis was performed for specific pairs using the number of observers who used a particular mediator to represent both gestures comprising that pair (a measure comparable to the total number of different pairs score used above). In this case (see Table 3) Presence condition observers used significantly more imaginal and verbal coding than Alone condition observers, but only for the first pair ($\underline{X^2}s$ = 4.25, $p < .05$ and 4.37, $p < .05$, respectively). None of the other comparisons were significant.

Table 3 goes about here

This analysis reveals that the presence of a stranger decreases the observers' mimicry of different gestures, especially components of the first two pairs of gestures in the list. The presence of a stranger increases in the observers' imaginal coding of pairs of gestures, but this change is most pronounced for the first pair in the list. Also, although the overall analysis did not find a significant increase in the observers' verbal coding in the presence of a stranger, these observers do engage in more verbal coding of the first pair than observers who are alone. In general, then, the major differences between the two conditions are to be found primarily in the observers' mediation of the first pair in the list.

The intercorrelations among the mediators within a given condition were low and not significant for both the Presence and

Alone conditions for the total number of different gestures mediated. The intercorrelations also were low and nonsignificant for the total number of pairs mediated in the Presence condition. In the Alone condition, however, mimicry of pairs was negatively correlated with imaginal coding (-.47, just short of being significant) and verbal coding (-.49, $p < .05$) of pairs. Imaginal and verbal coding were positively correlated (.61, $p < .01$), but this correlation is somewhat misleading; it results from the fact that observers who mimicked tended not to use imaginal or verbal coding. Therefore, the positive correlation between imaginal and verbal coding was due mainly to the high proportion of these observers who failed to use either of these codes. In general, therefore, this correlational analysis revealed that observers in the Alone condition who mimicked pairs of gestures tended not to use either form of symbolic coding.[4]

Analysis of pair learning. There was a tendency for more pair learning to occur in the Presence than in the Alone condition (Ms = 1.41 and 0.88, respectively), but this difference was nonsignificant.

A microanalysis compared the number of observers in each condition who learned and did not learn specific pairs. More observers in the Presence than in the Alone condition learned the first pair ($\chi^2 = 4.37$, $p < .05$). This was the only significant difference. Table 4 presents the cell frequencies according to pairs and conditions.

Table 4 goes about here

Relationships between mediation and learning. With both conditions

combined, the total number of gestures and the total number of pairs imaginally coded correlated .41 ($p < .02$) and .50 ($p < .01$), respectively, with pair learning. None of the other mediators correlated significantly with pair learning.

A microanalysis was conducted to determine whether or not particular forms of coding were related to learning of specific pairs of gestures. Using the number of observers who coded at least one of the gestural components of a specific pair, only the relationship between mimicry and pair learning for the first pair was significant ($\chi^2 = 8.99$, $p < .005$); in this case, the use of mimicry was inversely related to pair learning. Using the number of observers who coded specific pairs (i.e., both gestures), only imaginal coding of the first and third pairs was found to be significantly related to learning those pairs (χ^2s = 5.67, $p < .025$ and 5.28, $p < .025$, respectively).

Imaginal coding was related to an increase in pair learning, but only in the first and third pairs of gestures. In addition, if observers mimicked either of the gestures from the first pair, they tended not to learn that pair.

Self-ratings. As expected, observers reported being more aware of the experimenter in the Presence ($M = 4.82$) than in the Alone ($M = 6.94$) condition ($t(32) = 2.59$, $p < .02$). No significant differences were found between conditions for any of the other bipolar ratings (i.e., tense-relaxed; distracted-nondistracted; anxious-nonanxious; fearful of being evaluated-nonfearful of being evaluated).

Suspiciousness. Although a few observers indicated that they were suspicious about the study, in most of these cases they were suspicious

about psychological experiments in general. One observer in the Presence condition indicated that she thought the experimenter might be interested in seeing "how" she learned the gestures.

Discussion

The effects of the presence of a stranger in observer mediation and learning are most evident in the microanalysis of the data. These effects are manifested most strongly in the observers' mediation and learning of the first pair of gestures in the list. The presence of a stranger (in comparison to being alone) reduces the observers' mimicry of the gestural components of the first pair. This reduction in mimicry is positively related to the learning of the first pair because observers are more likely to imaginally code the pairs if they do not mimic, and imaginal coding is positively related to their learning of the pairs. Since the self-ratings of their emotional-motivational states did not reveal any differences due to the presence of a stranger, the difference between the Presence and Alone conditions in the learning of the first pair appears to be due primarily to a change in the way in which observers in the Presence condition coded the first pair. These findings not only have implications for research in observational learning but, possibly, for social facilitation research as well.

Social facilitation research has shown that the presence of an audience can either enhance or interfere with an individual's learning and performance. Currently, the major explanations for such effects are of a motivational nature (e.g., distraction-drive

relationship, Baron, Moore & Sanders, 1978; evaluation apprehension, Cottrell, 1968; Henchy & Glass, 1968; arousal, Zajonc, 1965). In this study, the presence of a stranger (i.e., an audience) enhanced learning of the first pair, but this social facilitation effect was related to the pattern of mediation induced by the audience rather than a motivational change (at least so far as the self-ratings of motivational states revealed). An implication of this finding is that in learning situations where an audience increases motivation, this increase may change the learner's pattern of mediation in ways that may either enhance or interfere with learning.

It is not assumed that the presence of a stranger will always produce a change in the observers' pattern of mediation, particularly a reduction in overt mimicry. Judging from the observers' comments in this study and preceding studies (Berger, 1966; Berger, et al, 1979), observers refrain from mimicking because they are uncertain about the appropriateness or acceptability of such behavior. Consequently, the presence of a stranger probably will not reduce mimicry when observers' have reason to believe that mimicry is acceptable. For example, an examination of the mimicry of observers in the Presence condition who were excluded because they had sign language training shows that 57% of these observers reported mimicking the gestures while only 24% of observers in the same condition, but without sign language training, reported mimicking. Since mimicry is encouraged during sign language training, these observers presumably have learned that mimicry is an acceptable and, possibly, an effective technique for learning gestures. In addition, friends of the experimenter who participated in her

presence (but were excluded from the analysis) also tended to mimic more than those for whom the experimenter was in fact a stranger - presumably because her friends assumed she would be more accepting of such "bizzarre" behavior.

Of course, it might be argued that the observers included in this study acutally mimicked but failed to report it because they were uncertain about the acceptability of such behavior. Although independent measures of mimicry were not obtained in this study, two separate tests of the validity of the self-reports of mimicry were conducted previously and demonstrated that such reports are reasonably valid.[5]

These self-reports may or may not reflect the ovservers' internal processing of the information provided by the model's behavior. It seems more appropriate, at this time, to interpret these reports as indexes of what observers <u>do</u> in order to learn rather than of the learning process itself. The self-report items explicitly ask observers about the mediators they <u>used</u>, not <u>how</u> they learned. Furthermore, the validity test described above only verifies that observers were reporting what they were doing. This distinction is important for interpreting the nature of these self-reports.

Although the presence of a stranger had its main effect in the mediation and learning of the first pair of gestures, this finding should not be construed as minimizing the importance of this effect. Observers do not necessarily receive repeated exposures to a model's behavior in natural social situations; furthermore, it is natural for such behavior to be displayed sequentially and at a fairly rapid rate (which this study attempted to simulate). The results

of this study indicate that under these circumstances, observer mediation (to some extent) and learning (to a larger extent) tends to diminish during the sequential presentation. Thus, mediation and learning are expected to be greatest for the initial behavioral components in the sequence of model behavior.

The results of this study have implications for learning other forms of behavior where mimicry may be involved. For example, overt mimicry of a model may facilitate verbal learning, foreign language learning, and the learning of motor skills. If the presence of a stranger inhibits overt mimicry, observers may encounter some difficulty in these types of learning unless they can compensate effectively by engaging in some other form of mediation.

Finally, the results of this study should not be generalized beyond the limited nature of the learning test, which was given almost immediately (within about one minute) after the model's presentation. The long-term effects of the patterns of mediation found in this study were not investigated.

Footnotes

The authors are grateful to Linda L. Carli for her helpful comments.

Requests for reprints should be sent to Seymour M. Berger, Department of Psychology, University of Massachusetts, Amherst, Mass. 01003.

1. Fifty subjects were recruited, but sixteen were eliminated for the following reasons: 10 were familiar with sign language; 3 knew the experimenter; 3 responded to the questionnaire in ways that could not be interpreted.

2. This tape was a segment of the tape used by Berger, et al, (1979) in Experiment 2.

3. Although the one-way mirror in the room was covered, some pilot study observers were suspicious that they were being observed. The screen was used to reduce such suspicions.

4. The Pearson product-moment correlations reported here and elsewhere in this article are probably attenuated due to the low variability in the measures.

5. Berger, et al, (1979) found, in two separate studies, that self-reports of mimicry correlated .73 and .77 with independent recordings of overt mimicry. In light of this evidence, it was decided that the deception required to conduct another validity test was unwarranted.

References

Bandura, A. Principles of behavior modification. Holt, Rinehart and Winston, 1969.

Bandura, A., Grusec, J. E., & Menlove, F. L. Observational learning as a function of symbolization and incentive set. Child Development, 1966, 37, 499-506.

Bandura, A. & Jeffrey R. W. Role of symbolic coding and rehearsal processes in observational learning. Journal of Personality and Social Psychology, 1973, 26, 122-130.

Baron, R. S., Moore, D., & Sanders, G. S. Distraction as a source of drive in social facilitation research. Journal of Personality and Social Psychology, 1978, 36, 816-824.

Berger, S. M. Observer practice and learning during exposure to a model. Journal of Personality and Social Psychology, 1966, 3, 696-701.

Berger, S. M., Irwin, D. S., & Frommer, G. P. Electromyographic activity during observational learning. American Journal of Psychology, 1970, 83, 86-94.

Berger, S. M., Carli, L. L., Hammersla, K. S., Karshmer, J. F., & Sanchez, M. E. Motoric and symbolic mediation during observational learning. Journal of Personality and Social Psychology, 1979, 37, 735-746.

Cottrell, N. B., Wack, D. L., Sekerak, G. J., & Rittle, R. H. Social facilitation of dominant responses by the presence of an audience and the mere presence of others. Journal of Personality and Social Psychology, 1968, 9, 245-250.

Gerst, M. S. Symbolic coding processes in observational learning. Journal of Personality and Social Psychology, 1971, 19, 9-17.

Henchy, T., & Glass, D. C. Evaluation apprehension and the social facilitation of dominant and subordinate responses. Journal of Personality and Social Psychology, 1968, 10, 446-454.

van Hekken, S. M. J. The influence of verbalization on observational learning in a group of mediating and a group of non-mediating children, Human Development, 1969, 12, 204-213.

Zajonc, R. B. Social facilitation. Science, 1965, 149, 269-274.

Table 1

Means for the two Measures of Mediation

	Mediation Measures					
	Number of Gestures			Number of Pairs		
Condition	Mimicry	Images	Words	Mimicry	Images	Words
Presence	0.94	4.00	2.82	0.35	1.59	1.00
Alone	2.41	2.71	1.94	0.82	0.76	0.53

Note. The maximum number of gestures was 6; the maximum number of pairs was 3.

Table 2

Number of Observers Mediating at Least One Gesture in Each Pair

	Mediators								
	Mimicry			Images			Words		
Conditions	Pair 1	Pair 2	Pair 3	Pair 1	Pair 2	Pair 3	Pair 1	Pair 2	Pair 3
Presence	4	3	3	14	12	15	13	7	9
Alone	10	10	7	13	10	10	8	7	11

Note. Each cell contains 17 observers.

Table 3

Number of Observers Mediating Both Gestures in Each Pair

Conditions	Mediators								
	Mimicry			Images			Words		
	Pair 1	Pair 2	Pair 3	Pair 1	Pair 2	Pair 3	Pair 1	Pair 2	Pair 3
Presence	3	1	2	12	7	8	10	2	5
Alone	6	4	4	6	3	4	4	2	3

Note. Each cell contains 17 observers.

Table 4

Number of Observers who Learned Each Pair

	Pair		
Condition	First	Second	Third
Presence	13	5	6
Alone	7	5	3

Note. Each cell contains 17 observers.